

Accepted Manuscript

Investigation of injection moulded Poly(Lactic Acid) reinforced with long basalt fibres

Tamás Tábi, András Zoltán Égerházi, Péter Tamás, Tibor Czigány, József Gábor Kovács

PII: S1359-835X(14)00126-2
DOI: <http://dx.doi.org/10.1016/j.compositesa.2014.05.001>
Reference: JCOMA 3615

To appear in: *Composites: Part A*

Received Date: 2 January 2014
Revised Date: 23 April 2014
Accepted Date: 2 May 2014

Please cite this article as: Tábi, T., Égerházi, A.Z., Tamás, P., Czigány, T., Kovács, J.G., Investigation of injection moulded Poly(Lactic Acid) reinforced with long basalt fibres, *Composites: Part A* (2014), doi: <http://dx.doi.org/10.1016/j.compositesa.2014.05.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



TITLE:

**INVESTIGATION OF INJECTION MOULDED POLY(LACTIC ACID)
REINFORCED WITH LONG BASALT FIBRES**

AUTHORS:

**TAMÁS TÁBI^{A,B,*}, ANDRÁS ZOLTÁN ÉGERHÁZI^B, PÉTER TAMÁS^{A,B},
TIBOR CZIGÁNY^{A,B}, JÓZSEF GÁBOR KOVÁCS^B**

AFFILIATIONS:

^AMTA–BME RESEARCH GROUP FOR COMPOSITE SCIENCE AND
TECHNOLOGY, MUEGYETEM RKP. 3., H-1111 BUDAPEST, HUNGARY

^BDEPARTMENT OF POLYMER ENGINEERING, FACULTY OF MECHANICAL
ENGINEERING, BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS,
MUEGYETEM RKP. 3., H-1111 BUDAPEST, HUNGARY

*CORRESPONDING AUTHOR, TEL.: +36 (1) 463-14-59, FAX.: +36 (1) 436-15-
27, TABI@PT.BME.HU

1. Abstract

In this paper long basalt fibre reinforced Poly(Lactic Acid) (PLA) composites were prepared and analysed. Continuous basalt roving was coated with PLA by using continuous extrusion coating technology and a special die. The continuous basalt roving coated with PLA was cut into 10 mm long pellets, which were injection moulded. The properties of the long fibre reinforced composites were compared to chopped (short) basalt fibre reinforced PLA composites produced by using the conventional dry mixing, extrusion and injection moulding method. The mechanical properties of the long basalt fibre reinforced PLA was found to be superior to short basalt fibre reinforced PLA. Fibre length analysis revealed that the remaining average fibre length highly increased, while electron microscopy demonstrated that there is very strong adhesion between the phases. Finally it was found that the long basalt fibres also have nucleating ability, however, not as efficient as short basalt fibres.

2. Keywords

Mechanical properties (B), injection moulding (E), extrusion (E), Long basalt fibre composite (nominated new keyword)

Download English Version:

<https://daneshyari.com/en/article/7892250>

Download Persian Version:

<https://daneshyari.com/article/7892250>

[Daneshyari.com](https://daneshyari.com)